

Operator Returns Plugged SWD Well to Full Production with Customized Chemical Treatment

FIELD ANALYSIS AND LAB TESTING ACCURATELY DIAGNOSES CAUSE OF PIPELINE RESTRICTIONS FOR SUCCESSFUL REMEDIATION

ONSHORE GULF COAST, UNITED STATES

CHALLENGE

- » Production decline in a mature field due to recurring SWD well restrictions
- » Water quality and scale problems, requiring cost-effective remediation

SOLUTION

Multi-Chem field analysis and laboratory testing to diagnosis and apply the proper combination of specialized chemicals, including:

- » SS5669 and Musol-E solvents for acid stimulation treatment
- » MX 989-1 emulsion breaker
- » WC-7970 water clarifier
- » S-2101 scale inhibitor
- » Surfactant

RESULT

- » Successfully remediated scale deposits with targeted chemical application
- » Designed a long-term chemical treatment program to assure unrestricted flow going forward
- » Returned field to full production with no further issues
- » Achieved a first-month savings of \$71,643 compared to previous chemical provider

OVERVIEW

An operator was experiencing plugging issues that kept re-occurring in its saltwater disposal (SWD) well in the mature Roseland Plantation field, along the Gulf Coast of Louisiana. This pipeline restriction led to a decision to shut in wells, resulting in lost production and revenue. Prior to Multi-Chem evaluating the system, several acid stimulations were performed; but to no avail, with each treatment lasting less than a week before having to shut in wells again.



To mitigate scale buildup (common in high salinity conditions) and, thereby, increase the SWD well's throughput, the operator was planning on pulling tubing, washing out the well and re-perforating new zones—a project that would incur an estimated cost of more than \$45,000—not including downtime. A more economical solution was sought and introduced, using Multi-Chem's analytical expertise and product knowledge of proven acid stimulation treatments, as well as emulsifiers, water clarifiers, and surfactants, to target the scale deposits impacting flow.

THE IDEAL CHEMICAL TREATMENT

A Multi-Chem technician evaluated the produced water going to the SWD well via both field analysis and laboratory testing, which revealed a combination of calcium carbonate, iron carbonate and hydrocarbons to be the problem. Multi-Chem recommended an acid stimulation treatment that combined two Halliburton products, SS 5669 and Musol-E solvents. These chemicals were spotted at the perforations and allowed a certain amount of contact time before putting the SWD well back in service. The treatment effectively remediated the restrictions, and operators were able to bring on all production without any issues.

Multi-Chem followed up the SWD well treatment with an ongoing customized chemical program, which included MX 989-1 emulsion breaker and WC-7970 water clarifier to reduce levels of oil being injected, S-2101 scale inhibitor to prevent scale from reforming, and a surfactant to aid the cleaning process. This comprehensive engineered solution enabled the SWD well to continue to perform without any further restriction/plugging issues.

POSITIVE RESULTS SAVE CLIENT \$76,643

Carbonate scale and hydrocarbon restrictions were successfully eliminated, and a long-term treatment plan was put in place for future flow assurance. The overall economic value from a one-time Multi-Chem acid treatment was extremely positive, with a monthly return on investment of \$204,261, saving the client \$71,643 compared to the incumbent chemical provider in the first month alone. This does not include the additional lost production the Roseland field would have experienced had the SWD well intervention had not occurred.

The engineered chemical treatment solution not only inhibited and prevented scale, but also prolonged the life of the asset with optimized flow and production rates, while decreasing operating expenses.

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